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Abstract

HEALTH PHYSICS PROBLEMS IN THE CONTEXT OF THE DEVELOPMENT OF INDUSTRIAL USES OF NUCLEAR ENERGY

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The development of the industrial use of atomic energy has underlined the need to promote a rational and coherent doctrine relative to the safety of nuclear installations, with particular reference to nuclear sites.

The chief aim in the safety field is to reduce or even eliminate irradiation or contamination risks to the workers and the population due to normal or accidental functioning of the installations.

A complex set of safety methods is used, amongst which the authors take into particular consideration those which are to some extent independent of the type of installation : alarm and measurement systems and their setting in operation, technical and psychological training of individuals, estimation of the capacity of a site to "absorb radioactive wastes without damage to the population". It is obvious, in effect, that the consequences of an accident are diminished by the improvement of monitoring, measurement and alarm systems, by the raising of the technical level and by training of personnel and the education of the population.

This is particularly true near a nuclear installation, where a study of the danger is somewhat abstract in nature and the technological means of protec-

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tion are many and complex.

From investigations to test the suitability of sites, it is possible to determine the diffusion or reconcentration parameters in the various natural media ; in this way the fate of radioactive effluents can be anticipated from the installation in which they have their source to man who may be exposed to them.

The organisation of radioactivity supervision on nuclear sites is very closely band up with these studies.

Amongst the many fields of investigation open, the following will be emphasized particularly :

- atmospheric diffusion experiments, the object of which is to determine the value of parameters established theoretically while at the same time taking account of complementary factors.
- hydrological, hydrogeological and oceanographical studies, from which the fate of radioactive ions in the hydrosphere may be determined.
- experiments and studies linked with the possibilities for disposal a underground storage of waste.

All these studies cover a complementary field, that of radioprotection, which forms the necessary link between nuclear safety proper, which concerns the actual operation of nuclear installations and medical supervision which directly concerns the health of the individual and the population. At the same time each one of the Health Physics disciplines possesses an independance which increases their efficiency on the safety level.